

REMARKS

Claims 1-62 are pending in this application, claims 23-62 having been withdrawn from consideration. By this Amendment, claims 1, 4, 9, 16 and 19 are amended. Support for the amendments to claims 1, 4, 9, 16 and 19 can be found in the specification as originally filed, for example, in paragraphs [0016], [0018], [0028], [0033], [0038]-[0043], [0054], [0073], [0076], [0084], [0085], [0098], [0099], [0108], [0109], and [0117]; and in original claims 1, 4, 9, 16 and 19. In addition, the specification is amended to correct minor informalities therein. No new matter is added by these amendments.

I. Restriction Requirement

A telephone requirement for restriction was made in connection with the above-identified patent application on March 22, 2006. Applicants affirm that, in response to that telephone requirement, a provisional election was made on March 27 to prosecute Group I, claims 1-22; accordingly, claims 23-62 are withdrawn from consideration. Applicants respectfully traverse the Restriction Requirement.

It is respectfully submitted that the subject matter of all claims is sufficiently related that a thorough search for the subject matter of any one Group of claims would encompass a search for the subject matter of the remaining claims. Thus, it is respectfully submitted that the search and examination of the entire application could be made without serious burden. *See* MPEP §803 ("if the search and examination of an entire application can be made without serious burden, the examiner must examine it on the merits, even though it includes claims to independent or distinct inventions" (emphasis added)). It is respectfully submitted that this policy should apply in the present application in order to avoid unnecessary delay and expense to Applicants and duplicative examination by the Patent Office.

Applicants further respectfully submit that, because claims 1-22 are in condition for allowance for the reasons set forth below, claims 23-62 should be rejoined and considered on

the merits at this time. Thus, withdrawal of the Restriction Requirement and rejoinder of claims 23-62 are respectfully requested.

II. Claim Objections

The Office Action objects to claim 16 for informalities within the claim. While Applicants do not necessarily agree with the objection, claim 16 has been amended herein to correct the identified informalities. Accordingly, withdrawal of the objection is respectfully requested.

III. Claim Rejections Under 35 U.S.C. §112

The Office Action rejects claim 18 under 35 U.S.C. §112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention. While Applicants do not necessarily agree with the rejection, claim 16, from which claim 18 depends, is amended herein to depend from claim 1. Applicants respectfully submit that this amendment clarifies the subject matter of claim 18 and that claim 18 is not indefinite. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

The Office Action also rejects claim 21 under 35 U.S.C. §112, second paragraph, as indefinite for failing to particularly point out and distinctly claim the subject matter that Applicants regard as the invention. While Applicants do not necessarily agree with the rejection, claim 16, from which claim 21 indirectly depends, is amended herein to depend from claim 1. Applicants respectfully submit that this amendment clarifies the subject matter of claim 21 and that claim 21 is not indefinite. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

IV. Claim Rejections Under 35 U.S.C. §102

A. Fisher

The Office Action rejects claim 1 under 35 U.S.C. §102(b) over U.S. Patent No. 6,203,814 to Fisher et al. Applicants respectfully traverse this rejection.

Independent claim 1 sets forth a "resistance element comprising an electrical resistance body consisting of a patterned carbon nanotube structure having a mesh structure, in which plural carbon nanotubes are cross-linked to one another through cross-linked sites."

Fisher teaches graphitic nanotubes that may be uniformly or non-uniformly substituted by functional groups. *See* Fisher, Abstract; col. 1, lines 5-9. The Fisher nanotubes may be cross-linked using a polyol, polyamine or polycarboxylic acid to form networks. *See* Fisher, col. 1, lines 12-15; col. 4, lines 12-15; col. 7, lines 19-41.

However, Fisher does not teach, in discrete embodiments, a patterned carbon nanotube network structure having a mesh structure, an electrical resistance body consisting of such a patterned carbon nanotube network structure, or a resistance element comprising such an electrical resistance body, as required by claim 1. *See generally* Fisher. Rather, Fisher merely provides general teachings regarding functionalized graphitic nanotubes and fibrils, and structures that may be formed by cross-linking functionalized graphitic nanotubes. Because Fisher does not teach a "resistance element comprising an electrical resistance body consisting of a patterned carbon nanotube structure having a mesh structure," as set forth in claim 1, Fisher cannot anticipate claim 1.

Thus, claim 1 is patentable over Fisher. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

B. Niu

The Office Action rejects claims 1 and 22 under 35 U.S.C. §102(e) over U.S. Patent Application Publication No. 2003/0086858 A1 to Niu et al. The Office Action also rejects

claims 2-12 and 16-21 under 35 U.S.C. §103(a) over Niu. In addition, the Office Action rejects claims 3-21 under 35 U.S.C. §102(e) or, in the alternative, under 35 U.S.C. §103(a) over Niu. Because these rejections are closely related, Applicants respectfully traverse these rejections together.

Independent claim 1 is set forth above. Claims 2-22 depend, directly or indirectly, from claim 1 and include all of the limitations thereof.

Niu teaches methods of chemically modifying the surfaces of carbon nanotubes by oxidation with peroxygen compounds. *See* Niu, Abstract; [0002]. Niu's surface-oxidized carbon nanotubes may be functionalized with oxygen-containing functional groups, such as hydroxyl, carbonyl and carboxyl groups. *See* Niu, [0092]. In addition, the carbon nanotubes of Niu may be cross-linked to produce a network of carbon nanotubes. *See* Niu, [0043]; [0050]; [0103].

However, Niu does not teach, or even suggest, a patterned carbon nanotube network structure having a mesh structure, an electrical resistance body consisting of such a patterned carbon nanotube network structure, or a resistance element comprising such an electrical resistance body, as required by claim 1. *See generally* Niu. Rather, Niu merely teaches that surface-modified carbon nanotubes can be oxygen-functionalized and cross-linked to form networks. Niu nowhere teaches or suggests a "resistance element comprising an electrical resistance body consisting of a patterned carbon nanotube structure having a mesh structure," as set forth in claim 1.

Because Niu does not teach the claimed patterned carbon nanotube structure, Niu does not anticipate the resistance element of independent claim 1 and dependent claims 3-22. Because Niu does not even suggest the claimed patterned carbon nanotube structure, Niu also would not have rendered the resistance element of claim 1 or its dependent claims 2-22 obvious.

For at least these reasons, claim 1 and its dependent claims are patentable over Niu. Accordingly, reconsideration and withdrawal of the rejections are respectfully requested.

V. Double Patenting

The Office Action provisionally rejects claims 1, 18 and 22 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2 and 15 of co-pending U.S. Patent Application No. 10/768,039 to Manane et al. The Office Action also provisionally rejects claims 1, 2 and 22 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 5 and 9 of co-pending U.S. Patent Application No. 10/935,174 to Anazawa et al. In addition, the Office Action provisionally rejects claim 3 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 11 of co-pending U.S. Patent Application No. 10/537,745 to Manane et al.

According to MPEP §804, if a provisional double patenting rejection in one application is the only rejection remaining in that application, the Examiner should then withdraw that rejection and permit the application to issue as a patent.

In this case, as discussed above, the rejections based on Fisher and Niu should be withdrawn. Thus, the provisional double patenting rejections are the only rejections remaining in this application. As such, Applicants respectfully request that the Patent Office withdraw these rejections and permit this application to issue as a patent as required by MPEP §804.

Thus, reconsideration and withdrawal of the provisional rejections are respectfully requested.

VI. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-62 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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